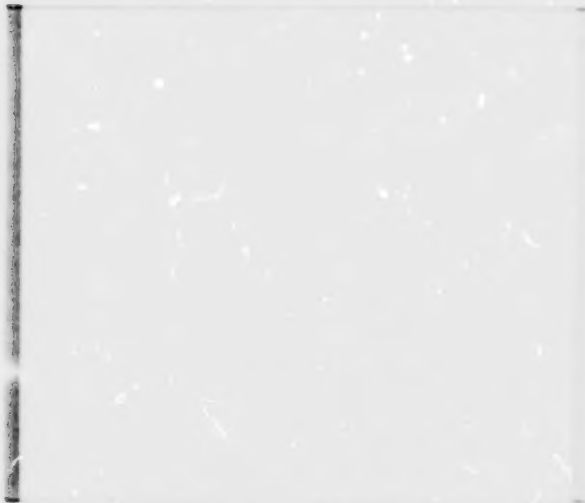




**Province of British Columbia Ministry of Finance
and Corporate Relations**



REPORT OF
THE COMMITTEE ON INDUSTRIAL
ASSESSMENT

MARCH 31, 1987

EXECUTIVE SUMMARY

PURPOSE OF THE REPORT

Six years of disputes over the value of special purpose industrial properties in British Columbia has undermined the confidence of taxpayers and taxing jurisdictions in the assessment process for such properties. In June, 1986, the Minister of Finance appointed this Committee on Industrial Assessment to propose an appropriate methodology for the valuation of these properties for property tax assessment purposes.

APPROACH OF THE COMMITTEE

Members of the committee have broad and diverse backgrounds in the area of property taxation. The committee consulted with outside experts and reviewed relevant jurisprudence and current techniques used for the valuation of real property. The committee benefited from submissions made to the Minister of Finance's enquiry in 1984 on Taxation and Economic Development and from submissions by industry to several investigative committees of the British Columbia Assessment Authority.

SUMMARY OF RECOMMENDATIONS

The committee recommends that:

1. regulations be enacted to compute actual value for special purpose industrial properties based on a replacement cost model;
2. value debilitation from replacement cost be considered for both internal and external economic debilitation;

3. the taxpayer be permitted an allowance for external economic debilitation upon filing a claim, but the allowance claimed may be appealed by the assessor;
4. the current appeals system remain intact except that the Court of Revision have no authority over external economic debilitation and the Assessment Appeal Board deny adjustments if the taxpayer has failed to supply the assessor with the necessary information;
5. a specialized Assessment Appeal Board be established to hear assessment appeals of special purpose industrial properties; and,
6. rules be enacted to more clearly define those elements of a large processing facility that are subject to property taxation.

In evaluating alternatives the committee concluded that 'fine-tuning' current assessment practices and legislation would be preferable to a radical departure into an untried methodology. The committee was influenced by its perception that tax base stability was important to both taxpayers and tax collectors.

The committee has been unable to test its valuation approaches against current recorded assessments and recommends that testing should occur prior to implementation. Appropriate transitional rules may be necessary depending upon the results of these tests.

The committee discussed at length two broad approaches to economic debilitation. One approach would rely on historic earnings; the other approach would rely on projections of future earnings. Each concept has its advantages and disadvantages. The committee prepared models for each of these concepts and includes these models in this report without a recommendation as to which should be adopted.

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MANDATE OF THE COMMITTEE ON INDUSTRIAL ASSESSMENT

In the 1986 Budget Speech of the Minister of Finance of British Columbia, the Minister announced his intent to form a committee to seek a simpler and more acceptable method of determining market value for industrial properties. In June, 1986, a committee comprised of seven members was formed with the following task.

"To prepare a report for the Minister of Finance recommending an appropriate methodology for the valuation of industrial property. The report should include a summary and evaluation of reasonable methodological approaches and advice as to which approach the committee deems most appropriate. In recommending a methodology, the committee should give due regard to tax base stability, equity among industrial sectors and industrial properties, practicality of dispute resolution and impacts on existing property taxes."

The committee members are:

Mr. Hugh Gordon, C.A., Chairman	Tax Partner, Thorne Ernst & Whinney
Mr. Bill Armstrong, P.Eng.	Technical Superintendent, Cominco Metals
Mr. Bruce Cohen, Q.C.	Partner, Ladner Downs
Mr. James Finkbeiner, C.A.	Vice President, Tax, Properties and Risk Management, McMillan Bloedel
Mr. Tom Johnstone	Assessment Commissioner, the Province of British Columbia
Mr. Peter Klassen	Partner, Crease & Company
Mr. Jeff McKelvey	Consultant and former Executive Director, Union of British Columbia Municipalities

GENERAL APPROACH OF THE COMMITTEE

The committee has discussed the valuation problem with which it has been challenged and has considered alternative solutions to the problem. As well, the committee has consulted with outside experts including members of the Department of Urban Land Economics at the University of British Columbia and Industrial Engineering Consultants. The committee has reviewed jurisprudence as it applies to the valuation of industrial assets and the technical appraisal and valuation literature. Members of the committee bring to their task a broad and diverse background in the area of property taxation.

The committee is of the view that it is not its role to propose the resolution of current property taxation problems created by adjustments of previously assessed values as a result of successful appeals. The committee interprets its task as finding an equitable, practical and predictable methodology for the future valuation of industrial properties for property taxation purposes. If the committee's recommendations are implemented, the committee anticipates that valuations for the 1989/1990 assessment roll would be prepared on the basis of its recommendations.

HISTORY OF PROPERTY TAXATION IN BRITISH COLUMBIA

As a background to the property tax problems associated with special purpose industrial properties, it is useful to review the history of property taxation in British Columbia and particularly the chequered history of values used for assessment. Appendix A provides an historical overview of property taxation in British Columbia. It is noteworthy that in 1860 properties were being assessed at actual value. Many problems

associated with property taxation in British Columbia during the last century have arisen because assessed value lost its relationship to actual or market value -- or to any other independent datum.

Since 1980, disputes over the valuation of special purpose industrial properties have been a problem. Although the requirement to value the properties and the value to be ascertained ("actual value") did not change, the early 1980's brought recession to resource-based industries and a taxpayer concern for the burden of high fixed property tax costs. The essentially cost-based methodology used by assessors for the valuation of special purpose industrial properties and the resultant unresponsiveness of assessed values to the depressed economics provided a basis for taxpayer criticism of the assessment process. A combination of assessed values perceived to be higher than 'market value' and a tax rate 3.4 times the rate applied to residential properties, has had industrial taxpayers seeking recourse to the Assessment Appeal Boards and the Courts whose review of assessed values and acceptance of a more investment-based valuation methodology -- such as the discounted cash flow approach -- has resulted in substantial decreases in the assessed value of many special purpose industrial properties.

THE BASIS OF PROPERTY TAXATION

The basis upon which British Columbia assesses and imposes property taxation is the current actual value of real property. In British Columbia actual value means market value. Generally this is the basis of property taxation in the western world.

There are various misconceptions with respect to the basis of property taxation.

1. Property taxes are, or should be, related to the ability to pay. Ability to pay is not a factor in property taxation. Although there is probably a positive correlation between owners of valuable property and their ability to pay, the owner's ability to pay is traditionally not a factor in the quantum of taxes that he is charged. For example, the existence of financing on a property does not affect the value for property tax purposes nor does the income or wealth of the owner. This occasionally causes confusion since the income capacity of the property assessed may be the determinant of the actual value of the property and thus of the taxes charged the property.
2. Property taxes are, or should be, a charge for services used. This misconception is supported by the raising of particular revenues through a property tax or by collecting specific user fees at the time that property taxes are collected. For instance, although schools are often funded by way of property taxes, the amount of school tax on a particular property is not related to the number of the owner's children attending school.

In general, property taxes are added to the general revenue of the taxing authority and are available to provide the services for which that authority is established. The selection of actual value as a tax base is well established and has been chosen by most taxing jurisdictions since the inception of property taxation.

The committee does not consider that it is within its mandate to question the actual value basis of property taxation in British Columbia. It is

thus the view of the committee that it must seek a solution to the valuation of special purpose industrial properties as consistent as practically possible with the actual value basis of property tax assessment.

VALUATIONS

1. The Market Approach

The Courts have determined that 'actual value', as used in the Assessment Act, is synonymous with 'market value'. Market value is the highest price that a property would bring in an open, unrestricted and knowledgeable market. Actual value of an asset is thus to be determined by finding the answer to the question 'what would this asset bring in dollars if sold in an orderly and knowledgeable market to obtain the highest price?'

Actual value for most properties on the assessment rolls can be estimated with some confidence by reviewing the sale price of comparable properties. Thus the valuator can estimate a value for a residential home by looking to actual sales of comparable homes in the same area. For commercial properties such as apartment buildings, hotels, and office buildings, the valuator will typically have fewer sales of comparable properties than for residential homes but will be able to estimate value by looking to what the market is paying for properties capable of producing a comparable income stream. Many industrial properties such as warehouses, buildings housing machine shops, etc., will have alternative uses and comparable sales or rental values can be found in their market places. Actual value can be estimated based on these sales or on the rental value and on what the market is paying for a comparable income stream.

But single use, special purpose buildings pose two problems. They are rarely traded in the market and if they are traded, they are traded as part of a larger package which will typically include a business and a resource such as a mine or forest rights. Generally there will be no market data nor will there be a determinable income stream attributable to the assessable land and building to which the valuator may look in his valuation. The only independent source to which the valuator can look will be the decision of the taxpayer who has constructed the facility. At the time of construction, a market decision is made -- the taxpayer constructing the facility effectively decides to make a purchase equal to his costs. The valuator thus will use the taxpayer's cost as the only market transaction relevant for the facility. But this 'transaction' will become less relevant as time passes and the economics of the facility changes -- either because of changes in internal economics such as altered operating costs or external factors bearing on the industry in which the facility does business. The valuator will attempt to compensate for this by making adjustments to the taxpayer's cost to reflect these internal and external changes. Clearly, the rate of change of internal and external economics of the facility will affect directly the degree of relevance of the taxpayer's initial cost as a market transaction.

The number of properties for which there is little evidence of real property market value data -- termed special purpose properties in this report -- is not large compared to the total number of assessable properties in the province. The B.C. Assessment Authority estimates that of the 1,220,000 property folios in British Columbia there are approximately 2,000 assessment folios of this nature. The types of properties which generally would be treated as special purpose properties have been listed in Appendix B. They include most properties associated with direct development of the natural resources of the province such as

mine buildings, sawmills, pulp and paper plants, oil refineries, coal terminals, etc. As well they include large processing and transportation facilities such as sugar refineries and grain terminals. Certainly there are types of properties not included in Appendix B for which there is little independent market data and which thus pose a problem to the valuator. As well, there may be independent market data available for valuation of a particular property that is of a type listed in appendix B. However, the properties which are described in Appendix B are generally the type of properties which are the source of major valuation problems and assessment appeals. Appendix B is not necessarily a complete list of all properties which could be treated as special purpose industrial properties.

2. The Cost Approach

As outlined above, the valuator of a special purpose property will look to the taxpayer's decision to build the property and his actual costs incurred as evidence, at the time of construction, of the market value of the property. In the absence of current market sales data of comparable properties, generally the valuator uses initial cost and adjusts that cost to reflect the impact of internal and external economics on this single market transaction -- the original cost.

Contrary to the view of its critics, the historic cost approach to value is a market based approach, albeit one with severe limitations. Although the original cost can be viewed as a market purchase price, it is a single market transaction and it could represent an anomalous purchase price. Perhaps the taxpayer has erred in his economic or technical evaluations and no taxpayer, including the builder, would choose to build this same facility at the taxpayer's cost -- even though internal and external

factors remain constant. Or perhaps the taxpayer's costs reflect overruns which, had they been foreseen, would have changed his decision to build.

Assuming that cost can be taken as a reliable indication of the market at the time of construction, how effectively can cost be adjusted to reflect subsequent economic and technological changes? Changes for which adjustments must be made include:

- a. Technology: The facility when built was the appropriate one for the task but now a different technology would be employed requiring different structures than that which exist and which would be built at a different construction cost and with different operating costs.
- b. Operating Inefficiencies: The structure is now older, has less of its useful life remaining and during its remaining life will have higher per annum operating expenses -- i.e., its most efficient years are now past.
- c. Internal Economic Obsolescence: The structure may still be appropriate, and it may operate with the same efficiency as when new, but the resource which it is exploiting may be close to depletion or may now be far enough away from the facility that the facility has become of marginal value.
- d. External Economics: The external economic environment in which the facility operates will have changed. For instance, the market and/or price for the product of the facility may have declined, or failed to increase at the rate projected at construction, and the decision to build the facility, if made today, would be based on different economic projections which might not justify the historic cost of the facility.

Valuations using a 'cost approach' will attempt to make adjustments to compensate for all the above.

With what effectiveness can these adjustments be made? The following simplistic and hypothetical example can assist in an understanding of the difficulties.

Assume:

- a. Buildings for a mine constructed in 1979 at a cost of \$100 million and containing equipment costing \$300 million to exploit an ore body valued on a present value basis by the company at \$900 million (net of costs to mine and refine).
- b. By 1987 the following has occurred:
 - Maintenance costs for the building have tripled.
 - New technology would involve a building 80% of the original building size but costing \$190 million in 1987. Costs to operate the new building would be less by \$6 million per annum than the existing building which on a present value basis is viewed as a saving of \$51 million.
 - Markets for the output have declined and the ore body is now assumed to be worth \$630 million on a present value basis, net of costs to mine and process.
 - Costs to equip the building with the new technology would be \$420 million. The new equipment would operate at a saving, vis-a-vis the existing equipment, of \$10 million per annum which is equivalent to \$85 million on a present value basis.

It would appear that the taxpayer's building has a value of \$139 million. If the taxpayer were to look at the decision today he would be willing to spend \$190 million on a new building, \$420 million on new equipment and be left with \$20 million of residual value for the resource. In other words, if a buyer paid \$20 million for the resource, he could still afford the costs of \$190 and \$420 million for building and equipment respectively. That buyer would be indifferent between the new building and new equipment at \$190 million and \$420 million; or, the old building at \$139 million (\$190 - \$51) and old equipment at \$335 million (\$420 - \$85).

How would the cost approach arrive at such a conclusion? In practice -- it may not! The valuator will not know the value of the resource in 1979 nor currently, nor typically the cost of new equipment. He may have observed the decline in the industry and attempt to measure it and provide an allowance for it -- an allowance that the above example would show is not justified. The valuator may also attempt to start with the 1979 historical costs -- costs which have become irrelevant with the passage of time and changing technology. The most the cost approach, as appropriately applied using replacement costs, could say is that the value of the building would not exceed \$139 million.

Unless the cost approach recognizes external factors, it will lose relevance. The traditional cost approach recognizes these external factors with terms such as "external obsolescence" -- but there has been little development of a methodology to determine this external obsolescence for a special purpose industrial property.

3. The Investment Approach

The other approach to determining property value is often termed the

"investment approach". It attempts to determine what the market would pay for the facility based on its ability to generate income. Its technique is to emulate the internal analysis that a buyer might use in determining how much to pay for the facility. Although appropriate for internal corporate decision-making this technique has limitations when applied for property tax valuation purposes.

The method generally used by business for investment purposes is the discounted cash flow approach. Although there are some differences in application of the technique, particularly as to how risk is handled, each variation has common shortcomings.

These are:

- a. The approach determines a value for all assets of a multi-asset facility. To determine the value of land and building requires proration. But each asset is essential to the facility. In theory you would not pay more than replacement cost for the building or land, thus the discounted cash flow analysis must be supplemented with replacement cost analysis.
- b. Discounted cash flow relies on estimates of future sale prices, operating costs, upgrading costs, sales volumes, taxes, etc., to determine the level of future cash flows. All of these are subjective to the particular analyst. As the value being looked for is a market value, the particular taxpayer's predictions are not the only ones that must be considered -- what is theoretically sought is the second most optimistic purchaser capable of financing the purchase. It is the price this purchaser would pay that establishes the hypothetical market value. The analyst preparing the cash flow estimates must be

familiar with the economics of the industry and capable of hypothesizing this particular purchaser. It is difficult to attract the appropriately qualified analysts to an assessing authority. Even if qualified analysts are available to the assessing authority, the subjectivity of the analysis will often result in large differences in the value of the total facility as between different analysts.

- c. To prepare a meaningful discounted cash flow analysis requires detailed financial knowledge of the operations of a facility. Taxpayers have not been willing to make this information available to the assessor -- presumably for reasons of confidentiality. Without this knowledge, the assessor is not able to prepare his analysis or to criticize an analysis prepared by the taxpayer.
- d. Having estimated future cash flows a discount rate must be chosen to determine the present value of the facility. How the discount rate considers risk may be different as between discount techniques used by different analysts making comparisons of results difficult.

4. The Integrated Approach

The value of the land and buildings in a facility will not be greater than the cost to replace the land and buildings with ones of equal or greater utility as adjusted to reflect inefficiencies inherent in the existing land and buildings -- this value is referred to as "adjusted replacement cost". The value will not be less than the scrap value of the buildings and market value of the land. If the facility has the potential to earn sufficient income to support the adjusted replacement cost of the land and building, then it is this adjusted replacement cost that is the value of the land and buildings.

To determine the potential of the facility to earn sufficient income to support this value a discounted cash flow analysis is used. Thus actual value for a special purpose property generally should be determined by a combination of an adjusted replacement cost and discounted cash flow analysis.

The committee is of the view that if a discounted cash flow analysis is to be used to test whether adjusted replacement cost can be supported by projected future cash flows, there would remain a substantial basis for disputes and changes would be required to minimize the consequences of such disputes.

The committee is of the view that replacement cost new and adjustments to that cost for internal factors can be estimated on a practical basis.

ADVERSE CONSEQUENCES OF DEFICIENT VALUATIONS

A review of recent Assessment Appeal Board cases makes it clear that there are large differences in opinion as to the value of particular industrial plants. Between 1982 and mid-1986 the Assessment Appeal Board has reduced assessed values on special purpose industrial properties by approximately \$570 million on an annualized basis with many appeals still pending. Although a material amount in itself, when viewed in light of an annual average assessment roll over the same period of approximately \$150 billion, this constitutes a relatively minor element of the property tax situation in B.C. This \$570 million adjustment reduced the assessed value of approximately twenty properties. But, by their nature, special purpose industrial properties are often located in smaller municipalities and constitute a material portion of the particular municipality's tax base. By the time a decision is received from the Assessment Appeal Board, the

municipality will have set its tax rates, collected the tax revenues and expended those revenues. As a result of the appeal, the municipality can be obligated to refund taxes to the successful appellant -- a refund that it does not have the funds to make. By adjusting mill rates, it may recover its shortfall in taxes in future years -- often primarily from the successful appellant -- but this does not alleviate the municipality's immediate cash problems.

Where there are several large industries in the same taxing jurisdiction, the plant that successfully appeals may obtain a competitive advantage over the plant which does not appeal. This has the tendency of increasing the number of appeals. For school tax purposes, the entire province constitutes a single taxing jurisdiction and as one taxpayer sees the success of another in the appeal process, there is an incentive for each taxpayer to appeal his property tax assessment to avoid paying more than his 'fair share'.

The appeal process is costly and time consuming. Each side will call upon experts and a particular case may take three weeks or more. Given the difficulty and uncertainties associated with valuing the special purpose industrial property, the ultimate resolution of the appeal is particularly difficult to predict.

OTHER JURISDICTIONS

The committee has reviewed what other North American jurisdictions are doing to address this particular valuation problem. Some jurisdictions have foregone a fair value assessment approach for special use properties whereas others are updating their valuations at intervals of five or ten years and longer.

Due to the particularly strong resource sector in British Columbia, with the majority of special use facilities located in smaller communities, the valuation problem in British Columbia is especially acute. The committee has been unable to identify any other jurisdiction which currently uses a valuation methodology for special purpose industrial properties and whose approach, if used in British Columbia, would permit retention of a fair value assessment system with revaluation every two years.

CRITERIA FOR A SOLUTION

The committee's mandate required that "In recommending a methodology, the committee should give due regard to tax base stability, equity among industrial sectors and industrial properties, practicality of dispute resolution and impacts on existing property taxes".

a. Tax Base Stability

The major destabilizing factor of the tax base since 1980 has been successful appeals of the value of special purpose industrial properties. These have caused a particular problem in that the tax base is reduced on a retroactive basis. Solutions to this cause of instability can be achieved by one or more of the following:

- adopting a valuation methodology that reduces the number of appeals of special purpose industrial properties;
- providing a valuation methodology which leaves less scope for variance in the values that are the subject of dispute;
- ensuring assessments and appeals are based on full knowledge of the taxpayer's operations; and,
- having an appeal system which responds quickly and consistently.

Stability of the tax base is a relative concept. To have a tax base that does not change (i.e., is stable) is not possible if taxation is to be on the basis of actual value. Certain sectors of the economy will always be in decline while others are growing.

It is the view of the committee that the tax base should recognize the relative shifts in value between industries and facilities. This can mean that the tax base of one municipality is declining while another is growing. It is desirable, however, that a temporary downturn in an industry should not result in a facility losing a substantial portion of its assessed value on the roll for one year to recover that value on the next roll. We do not believe that permitting values to adjust too quickly to a current year's economic downturn generally will correctly reflect the changes in the actual value of the facility. Put another way, several loss years in a row does not mean that the value of the facility has necessarily suffered a substantial decline. In fact, if such loss years are part of a cyclical process in the industry, having put those loss years in the past may indicate a higher current value for the facility. But when looking at several loss years, the valuator can never be sure whether they are the bottom of a cycle or points on a decline curve from which recovery will never come. If actual value can be determined it is the view of the committee that such actual value is the appropriate assessment value and the degree of tax base instability resulting therefrom should be accepted.

Although we have no independent data to support our view, the committee does not believe that the actual values of major industrial facilities are generally volatile. Rather, the committee believes that value erosion normally occurs on a more gradual basis as all

prospective purchasers in the market come to the same conclusion that long-term economic prospects for a facility are dim. Where there is a clear structural change in the economics of an industry, values would adjust rapidly since the change will be apparent to prospective purchasers. For instance, the opening of a major mine may alter permanently the supply and price of a particular metal and impact almost immediately on the value of all current mines producing that metal. To the extent that a model to emulate actual value is used, any bias in that model should be to enhance stability.

b. Equity Among Industrial Sectors and Industrial Properties

It is the view of the committee that equity is achieved through an assessment and taxation system which:

- provides a predictable basis on which a taxpayer may rely; and
- is objective in its application.

Objectivity and predictability of the system would be lost if similar type enterprises in the same taxing jurisdiction were to be valued on different bases. To retain equity it is the view of the committee that all industrial taxpayers should be subject to valuation on the same basis. It is also the view of the committee that actual value is the appropriate base.

As explained in the analysis earlier in this report, determining actual value with a reasonable degree of confidence for a special purpose industrial property is difficult. However, if there is to be equity within the industrial sector and between industrial properties, a practical valuation methodology to estimate actual value is required.

c. Practicality of Dispute Resolution

The high incidence of disputes over assessed values of special purpose industrial properties that are being appealed to the Assessment Appeal Board and the Courts have arisen primarily as a consequence of the economic downturn and a taxpayer perception that assessed values have not reflected the erosion of the value of assets as a result of adverse external economic conditions.

Essentially there has been a failure of taxpayers and assessors to apply an effective methodology to measure values of special purpose industrial properties. It is the view of the committee that the legislation of a valuation methodology would reduce the number of disputes. Whether there has been external economic debilitation and, if so, the quantum of the debilitation is a major source of dispute. The extent to which the number of disputes are reduced will depend, to a large degree, on how a legislated methodology deals with external economic debilitation. A model that depends solely on historical data, and ignores projected results, would be more effective in reducing disputes than a model that uses projection of future cash flows.

It is the view of the committee that the ability to dispute value and the resolution of such disputes by the Assessment Appeal Board is a necessary and healthy part of the property tax system in B.C. But where there is no consistency in the application of a theoretically supportable methodology, the committee believes that a workable methodology must be legislated. It is our view that the methodology itself would not be subject to appeal but matters pertaining to its implementation by the assessor would be subject to the existing appeal

process under the Assessment Act provided that the taxpayer has supplied the assessor with the information the assessor requires for implementation.

d. Impacts on Existing Property Taxes

To the extent that any method of valuing special purpose industrial properties results in a reduction or increase in the value of particular industrial properties there will be a shift in the relative burden of taxation between properties in the industrial sector. To the extent that the method increases or decreases the value of industrial properties in aggregate, there will be a shift of tax burden toward or away from the industrial sector. At the municipal level, the variable tax rate structure will permit municipalities to reallocate the tax burden to adjust for the shift. The provincial government has the same flexibility to alter rates in the collection of school and other taxes.

If a legislated valuation methodology attempts to estimate actual value and there is a difference between its value and that which has been determined on the current basis it would be impossible to determine which is correct. This reflects a major conundrum with which the committee has been challenged -- if actual value could be determined there would be no problem to resolve, and, without actual value to use as a 'yardstick', how can the appropriateness of any model be determined? A proposed solution will have to be judged on its internal logic.

ALTERNATIVE SOLUTIONS

The committee considered the following possible approaches in its deliberations:

1. Continue with the present system.
2. Continue with the present system but perform valuations at five or ten year intervals for special purpose properties.
3. Adopt some 'rule of thumb' approach which would apply a factor to physical and operating characteristics to determine an assessable value.
4. Adopt a discounted cash flow analysis approach.
5. Adopt a cost approach that does not consider external economic effects.
6. Adopt a cost approach which considers external economic effects.

The committee's evaluation of each of these alternatives is:

1. The Present System The committee is of the view that actual value should be most nearly attainable where there are no constraints on the valuator and he may respond to each unique valuation situation on its particulars. However, the past six years of appeals have demonstrated that a completely unstructured approach is not working. Thus, it is the view of the committee that there is a need for a common approach to the valuation of special purpose properties and, to ensure its universal application, it is necessary to legislate the approach. If a valuation approach is to be imposed, the approach should be as close as practically possible to a theoretically correct approach. A legislated approach to valuation would eliminate controversy over the correct valuation technique to be used and hopefully will limit disputes to questions of fact or opinion which are relevant to application of the legislated approach. For the above reasons the committee believes changes are needed to the present system.

2. The Present System with Longer Valuation Intervals Although a change to the present system to provide for valuations at longer intervals would reduce the number of disputes; the valuations, when done, would still suffer from the application problems reviewed above. Taxpayers in industries suffering declines would view their property tax assessments as being unresponsive to the realities of the economics of their industry. In periods of high inflation, property values would not be adjusting to higher costs possibly resulting in large increases in assessed values at the time of revaluation. Facilities constructed during the valuation period could be subject to higher taxation than older facilities of the same value thus favoring an older facility over its newer competitor.

For the above reasons the committee rejected this alternative.

3. Rule of Thumb Approach The committee considered various possible 'rules of thumb' to estimate actual value. A 'rule of thumb' can vary from a relatively simplistic approach, for example, buildings are valued at a fixed amount per square foot, to a complex mathematical model of each operating facility. Simplistic rules of thumb were rejected as not attempting to arrive at an actual value and thus they would be changing the property tax base for special purpose industrial properties. A complex 'best of the best' model approach was considered by the committee. A 'best of the best' model approach would attempt to construct a mathematical model of the most modern and efficient facility in that particular industry -- for example, a mathematical model of a new pulp and paper plant would be developed. Coefficients for the particular facility being valued would be determined by the assessor and these coefficients substituted for those in the 'best of the best' model equation resulting in a calculated value for the existing facility.

This approach was considered theoretically promising by the committee and might lead to an acceptable approach if only a single type of industrial facility was the cause of valuation problems. But the need to create a different model for each type of special purpose industrial facility and the considerable specialized expertise necessary to generate the model were considered by the committee to make this approach impractical. As well the model might effectively value the complete facility, but it would still leave the valuator with the task of allocating value to the assessable assets.

For these reasons, the committee rejected a 'rule of thumb' approach.

4. Discounted Cash Flow Since this technique is often referred to as the appropriate valuation technique for industrial properties, the committee considered its applicability. As reviewed earlier in this report under 'Valuation Techniques' the committee believes that the discounted cash flow approach has shortcomings when used in an adversarial valuation situation where the value of every special purpose industrial property is required every two years. As well, the discounted cash flow approach cannot provide a value for land and buildings on its own. Its application would be to determine whether or not adjusted replacement cost was supportable based on the capacity of the facility to generate cash flow. By itself, the discounted cash flow approach would be able to estimate a value for a total facility but could not estimate a value for the land and buildings included in that facility. Thus the committee concluded that, as a sole valuation approach, discounted cash flow was inappropriate.
5. Cost Approach - No Adjustment for External Economics The committee was attracted to such a cost-based approach for the following reasons:

- it avoids the difficulty in attempting to recognize the effects of adverse external economics;
- it provides both the tax collector and the taxpayer with considerable certainty as to the assessed value;
- appraisers are familiar with the approach and training costs would be minimal; and,
- it could be justified on the basis that municipalities supporting a major industrial facility committed themselves to capital expenditures with reliance on the tax base created by the industry which the municipality existed to support.

The cost approach that is generally contemplated is a reproduction cost approach, i.e., the cost to reproduce the existing facility less a depreciation allowance. If a cost-based approach were to be used the committee believes a replacement cost new methodology is the most appropriate. Replacement cost new looks to the cost of replacing the existing facility with one using the latest technology and then adjusts this cost to reflect operating inefficiencies in the existing facility and, if appropriate, depletion of the facility's resource. Application of the replacement cost new approach requires an engineering evaluation of the existing facility to determine with what it would be replaced. The committee met with engineering consultants to determine the practicality of preparing such an evaluation and concluded that it would be possible at a reasonable cost and that an assessor's manual could be developed for much of the costing function. Of major assistance in its application is the requirement to determine the value of only assessables -- principally land and buildings.

The reason for the committee believing that a replacement cost new approach is appropriate rather than reproduction cost is that a technically obsolete facility would not be reproduced. The costs to reproduce it thus are irrelevant in determining its value. A purchaser has the alternative of a new facility with the same utility as the existing one or the existing facility with its inefficiencies. If he makes the decision to purchase the existing facility he would be willing to pay an amount equal to the cost of a new facility less the capitalized excess operating costs of the existing facility -- what this report terms adjusted replacement cost.

The major short-coming of a pure cost-based approach is its failure to recognize a loss of value caused by external economic factors. Such an approach does not attempt to estimate actual value. For reasons outlined earlier in this report, the committee believes that actual value is the basic foundation of the British Columbia property tax system. The committee does not believe that special purpose industrial land and buildings should be assessed on an essentially different basis than other land and buildings. If they were, it is the view of the committee that a less equitable assessment system would result.

If there is no economic debilitation caused by external factors -- i.e., the facility is capable of producing income which justifies the adjusted replacement cost of the facility, then adjusted replacement cost of the land and buildings are their actual value.

Since the committee believes that special purpose industrial land and buildings should be subject to property tax on the same tax base as other land and buildings it rejected a pure cost based approach and looked to a method of adjusting for external value debilitation.

6. Cost-Based Approach Adjusted for External Factors: As discussed in paragraph 4 above, the committee believes that the effects of external economic factors must be considered if its proposal is to attempt to estimate actual value. As also discussed in paragraph 4, adjusted replacement cost provides actual value if there has been no external economic debilitation. The committee thus concluded that the best solution to the problem was a valuation methodology which:

- determined replacement cost new for a facility of the same utility;
- determined adjusted replacement cost by adjusting replacement cost new to reflect excess operating costs in the existing facility vis-a-vis operating costs that would be incurred in a replacement facility and, if necessary, adjusted to reflect depletion of the facility's resource; and,
- tested the adjusted replacement cost to determine if there was any external economic debilitation for which adjustment was required and, if necessary, make the necessary adjustment.

In adjusting for external economic debilitation an industry-wide discount factor might be applied to reflect the poor economic condition of an industry or an adjustment specific to the particular facility might be applied. Efforts in the past to recognize external economic factors generally have involved industry-wide discounts. The problem with this approach is that some facilities will receive discounts that do not warrant them whereas others will receive a much smaller discount than would be appropriate. As an example, consider two mines both producing the same product but one has a very rich ore body, inexpensively processed, whereas the other has a marginal ore body. A decline in price for the product can mean an immediate loss

of value in the plant of the marginal producer, whereas the other producer has lost some of the value in his ore body but his plant value remains unaffected.

A more appropriate approach is to assess each facility in consideration of the economic debilitation it has suffered. Regrettably this requires more work and greater complexity. But the Assessment Act requires an individual assessment of each real property and it is the view of the committee that the effect of external economic factors on each facility should be considered in the valuation of the land and building of that facility.

A COST APPROACH WITH RECOGNITION OF EXTERNAL ECONOMIC DEBILITATION

The committee believes that the appropriate valuation technique for land and buildings which are part of a special purpose facility is to:

- a. determine the replacement cost new of the land and buildings;
- b. reduce the cost by the aggregate of the capitalized value of the excess operating costs of the existing land and buildings vis-a-vis the land and buildings required for the replacement cost new model and, if necessary, by the loss of value to land and buildings resulting from depletion of the facility's resource; and
- c. reduce this value (adjusted replacement cost) further by any external economic debilitation to the extent the debilitation effects the land and building values as adjusted above.

The committee met with industrial engineers and believes that a replacement cost new model can be developed at acceptable cost. This model would determine the type and size of buildings required and would estimate what percent the buildings would be of the aggregate of building and equipment to be housed therein. The committee emphasizes that a proper replacement cost model, and not a reproduction cost model, should be developed - although valuation theory requires a replacement cost new model, in practice it would appear that reproduction costs generally are calculated. Development of replacement cost new models will require that assessors consult with industrial engineers since assessors cannot be expected to know the current status of production technology. Manuals can assist the assessor to cost buildings once their specifications have been determined by the industrial engineer. The committee does not foresee that the cost of machinery would need to be determined in order to obtain an estimated percentage for buildings. Rather, the committee foresees that the value of buildings as a percent could be estimated by the industrial engineer to the nearest five percentage points with sufficient accuracy. Estimated annual operating costs of buildings in the replacement cost new model would be calculated at the time the model was developed.

Having determined the operating costs of a new building the assessor would then compare these operating costs with the costs experienced for the current buildings and would capitalize the difference. Presuming the existing buildings had higher operating costs, the capitalized difference would be deducted from construction costs for the replacement cost new model. If the operating costs of new buildings were more than the operating costs of the existing buildings, the capitalized difference would be added to the replacement model construction costs. The difference in operating costs to be capitalized would include direct

building operating costs (heat, utilities, maintenance, etc.), plus a portion of indirect costs resulting from building siting and layout. It is the view of the committee that the capitalization rate should be legislated and should reflect current costs of capital in the resource sector.

A possible source of internal valuation debilitation in a resource-based facility is the depletion of the resource itself. Where the estimated life, at current prices, of a resource that provides input to a processing facility is limited and no economic alternative source of input exists, then the limited life of the facility and of its buildings and land should be recognized. This can be done by:

- a. amending the previous adjustments for excess operating costs to reflect that such costs need be borne only over the remaining life of the facility (and not for the indefinite long-term); and
- b. estimating the degree of value debilitation to land and buildings caused by the limited life of the facility -- calculations to make this estimate would be made using the legislated capitalization rate.

The difficult adjustment is the adjustment to recognize economic debilitation, if any, of the land and buildings as a result of the changes in external markets of the facility. As external conditions worsen, it is the resource and business goodwill which suffer the initial declines in value. Only after all the business value and all the value of a resource forming part of the facility has been lost will debilitation of the land, building and equipment commence. Debilitation of these 'hard' assets from adjusted replacement cost commences at the time that a prospective optimistic purchaser will fail to project a future cash flow stream that will be sufficient to cover the adjusted replacement cost of the assets plus provide the purchaser with an acceptable rate of return.

Lacking comparable market purchases for special purpose properties, the valuator can attempt to hypothesize a prospective optimistic purchaser and hypothesize his projections of future cash flows and required rate of return. This is the discounted cash flow exercise which is theoretically correct but its requirement for projections of the future can result in valid disagreements that will only be resolved by recourse to the Assessment Appeal Board. Any alternative technique requires that the valuator assume away some part of the problem.

The committee has considered two alternative models:

1. Capitalization of Past Earnings

- a. Description: This technique would take normalized cash flows of the facility from the recent past, determine a weighted average of these cash flows and capitalize them at a fixed capitalization rate. To dampen response to temporary cash flow declines, a maximum percentage decline in value in any one period would be permitted. Provided the facility remained in operation, a 'floor' would be determined below which the value would not be adjusted.

b. Underlying Assumptions

- (i) Assumption: value of a facility can be determined based on its recent cash flows. In fact, a purchaser will look at past cash flows as one item of evidence in his attempt to estimate future cash flows. It is based on his belief in future cash flows that he determines what he is willing to pay. Thus, past cash flows as the sole input into estimates

of future value is a rough model. However, it avoids disputes as to what hypothetical purchasers predict as the facility's future cash flows. It may also be viewed as a valuation model with a lag in which projections of future cash flows are replaced by actual cash flows from the lag period.

The use of past cash flows likely creates a bias toward lower value. Purchasers are optimists and it is likely that, to the extent they look to past performance, they believe that future results will be better than those in the past; whereas, the model assumes that past results will remain unchanged into the future.

- (ii) Assumption: a purchaser will accept the fixed capitalization rate as his rate of return. The committee foresees a legislated fixed capitalization rate approximately equal to the pre-tax cost of capital of a company in the resource sector. Essentially this is the marginal rate of return for a riskless investment. But all investors are to an extent risk adverse and for a facility of the size of most special purpose facilities, the risk aversion level will be high for most potential purchasers. It is unlikely that any investor would buy to earn a rate of return equal to such a capitalization rate. By using a capitalization rate that has a low bias, the model compensates to some extent for:

- the inclusion of cash flow results that would be viewed by potential purchasers as normal short-term, regular swings in the industry that would not be considered to impact sustainable future cash flows; and

- the use of inherently 'neutral' past cash flows as a predictor of future cash flows -- whereas it is an optimist that would be the actual buyer with a view that the future will be better.

It should be noted that this same capitalization rate would have been used for capitalizing excess operating costs which, if it is low, would have resulted in a larger adjustment to the replacement cost new value.

- (iii) Assumption: the rate of value decline caused by external economic factors will not exceed a fixed percentage. How fast value declines as a result of an adverse external event will depend on how quickly all potential purchasers perceive the event as having caused a permanent change in the economics of the facility. There are events which could be perceived almost immediately by all potential purchasers as being of a relatively permanent character. For instance, a substantial increase in province-wide utility charges might be perceived by all potential purchasers as irreversible. It is the view of the committee that perception of the effects of most external changes occurs more gradually and thus that declines in value of the facility due to external factors generally occur over a longer period of time.

When using past cash flows as the sole indicator of future performance the legislation of a maximum rate at which value may decline ensures a greater stability of the tax base.

(iv) Assumption: the value of a facility will not drop below a fixed percent of adjusted replacement cost unless the facility is closed. Such an assumption is unrealistic. Obviously the facility may be of any value between scrap value (which could be negative) and adjusted replacement cost. By imposing a floor on value, the committee is seeking to:

- ensure that an operating facility which almost certainly has some value by virtue of continuing operations, remains on the assessment roll at such an amount that there remains a base on which the taxing jurisdiction may impose tax; and,
- demonstrate a bias for tax base stability while still giving substantial recognition to the consequences of adverse external economics.

c. Ease of Obtaining Inputs

When looking at possible valuation methodologies to deal with external economic debilitation the committee considered particularly important how easily inputs could be obtained and how readily disputes could be resolved with respect to the accuracy of these inputs. As economic debilitation arises because of the perceived loss of ability to generate cash flows, a methodology that purports to consider economic debilitation must consider cash flows.

As outlined earlier in this report, the use of the discounted cash flow method, which relies on projections of future cash

flows, is subject to dispute over the levels of future cash flows. Instead, this alternative proposes to use historical cash flows. The committee foresees historical cash flows being determined as the cash flow that was generated directly by the operation of the facility. No deduction would be permitted for depreciation, for financing costs, for income taxes or for any administrative expenses incurred outside the facility. Costs and revenues would be 'normalized' so that they equal the costs and revenues that would have been paid or received had the facility been owned during the historical cash flow period by a hypothetical purchaser who dealt at arm's length with all suppliers and customers and operated the facility to industry operating standards with a view to maximizing its value.

The committee recognizes problems in determining historical cash flows according to this calculation. If included in the cash flows are purchases or sales at non-arm's length, how is an arm's length value to be determined? Particular difficulty can be encountered where there is no established market price for the inputs or outputs of the facility -- a common situation in many intermediate processing facilities in the resource sector. But if economic debilitation of a facility is to be recognized, cash flows must be considered and the difficulties in determining cash flows accepted. There will be less problems with historical cash flows as a base than if future cash flows are used.

If this alternative were to be adopted, the committee believes that an allowance for economic debilitation should be permitted only if the taxpayer makes application for an allowance and submits the necessary supporting information.

d. Model Parameters

The committee's suggested parameters for this model are:

- (i) Average Historical Cash Flows Any lagged historical cash flow technique has the potential of using data from the bottom of a business cycle to determine value at the top of a business cycle, or vice versa. Thus the period of historical data to be used should be less than the period of a business cycle. The effective period of the historical data can be shortened by weighting the most recent cash flows. The committee recommends the use of four years of historical data with the two most recent years weighted by a factor of two. Negative cash flows would be included in the calculation but a negative average would be deemed to be nil.
- (ii) Maximum Rate of Decline in Value This parameter should be such as to permit meaningful reductions in value while still maintaining an acceptable level of tax base stability. The committee has chosen 30% every two years on a declining balance basis. In the year of implementation of the model, the 30% would be applied to the adjusted replacement cost to determine the maximum allowance. Thereafter the maximum allowance would be 30% of the assessed value at the prior valuation, adjusted for acquisitions and dispositions of assessables.
- (iii) Value Floor The floor for value should be such that, for an operating facility, there remains sufficient value on the

roll in a single industry municipality that the municipality may make the political decision to tax the facility so as to collect revenue equal to that raised in the prior year. The committee has chosen 30% of the adjusted replacement cost as the figure below which the value cannot drop unless the facility ceases operations. A closed facility that it is reasonable to anticipate will recommence operations within two years would be treated as an operating facility.

e. Statement of the Model

The model that is created by this alternative is detailed in Schedule C.

2. Adjusted Discounted Cash Flow

a. Description

This approach would estimate future cash flows for a fixed period of time, discount these cash flows at a stipulated rate and add them to a discounted residual value which residual value would reflect no external economic debilitation. A maximum percentage decline in value in any one period would be permitted and a floor level would be established below which adjustment would not occur provided the facility continued operating.

If the fixed period was increased the residual value would decline, ultimately approaching zero, and this model would become the standard discounted cash flow model with a legislated discount rate, a maximum value decline and a floor value.

b. Assumptions

- (1) Assumption: the current poor short-term prospects are temporary and by the end of the fixed period, the facility will no longer be experiencing any external economic debilitation -- "the recovery assumption". This model looks at the facility as being somewhere on a cycle of earnings or losses. If a facility is at the bottom of the cycle it will come back toward a 'normal' level of earnings which support the adjusted replacement cost of the assessable assets. As the length of the fixed period increases, the relevance of this assumption decreases so that, with a long fixed period, the assumption has little or no affect. For shorter fixed periods, the static nature of this model is emphasized -- the model assumes the facility will not be or become permanently disabled because of adverse external factors but may suffer a short-term illness to rebound to its previous and normal level of good health. Clearly this does not reflect the real world in which facilities do die or never recover to their previous strong economic levels after a period of poor performance.

To the extent the fixed period is short, fewer future projections are needed and those required are for the more immediate future. Offsetting this advantage is the greater impact of this assumption and the further away the model will have moved from a more theoretically correct model.

Both positive and negative future cash flows would be included in the cash flow stream to be discounted. Thus the

discounted value of the facility could be calculated as nil. The committee is of the view that a maximum rate of decline and a floor value should be legislated.

- (ii) Assumption: the stipulated discount rate would reflect an acceptable rate of return for the purchaser. The committee foresees a legislated discount rate approximately equal to the pre-tax cost of capital for a company in the resource sector. As discussed in considering this assumption in the first alternative, the committee recognizes that a purchaser would not buy at such a rate. As in that alternative, the committee believes that to the extent there is a bias it should be to tax base stability. The model inputs should be the expected value (in a mathematical sense) of the hypothetical purchaser's projected future cash flows. Thus a cost of capital discount rate is theoretically supportable; however, the present value so derived would not be adjusted to reflect a particular prospective purchaser's aversion to risk as it would be in a theoretical model.

- (iii) Assumption: The rate of value decline caused by external economic factors will not exceed a fixed percentage. As in the historic earnings model, the committee recognizes that in some situations loss of value may occur relatively quickly. However, in general, it believes that the consequences of the effects of most external changes are perceived more slowly and thus that declines in value due to external events occur more gradually. For this reason, and in consideration of the committee's bias toward stability in the tax base, it is assumed that the rate of value decline every two years will not exceed a fixed amount.

- (iv) Assumption: Value will not decline below a stipulated floor level. As in the first alternative this assumption is not representative of the real world but for the same reasons, the committee believes some minimum level of value should be retained on the roll as long as the facility is operating. As above, a closed facility which it is anticipated will recommence operations within two years would be viewed as an operating facility.

c. Ease of Obtaining Inputs

Cash flows for this model will be defined in the same way as for the first model except that reference will be to future cash flows rather than historical cash flows. The same 'normalization' of projected cash flows will have to be considered when projecting future cash flows as was necessary in adjusting historical cash flows.

As in the first model, the committee foresees that no allowance for external economic debilitation would be permitted unless the taxpayer makes application for the allowance and submits the necessary supporting projections and calculations.

In addition to the difficulties that are associated with normalizing cash flows in the historical earnings model, this model requires projections of future sales prices, operating levels, operating expenses and input costs. The tax assessor would need the funds and authority to engage outside experts to assist him in reviewing the reasonableness of the taxpayer's projections.

d. Model Parameters

The committee's suggested parameters for this model are:

- (i) Fixed Period: This is the assumed waiting period until the adjusted replacement cost of the assessable assets will be presumed not to be debilitated by external economics.

To determine if there is any external economic debilitation, the adjusted replacement cost would be compared with the aggregate of the adjusted replacement cost discounted over the fixed period plus (or minus) the present value of cash flows which are projected to be received (or incurred) during the fixed period and which are attributable to the assessable assets.

The effects at a discount rate of 8% of different fixed periods on the weight given to the recovery assumption are:

Fixed Period (years)	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>
Discounted adjusted replacement cost as a percent of adjusted replacement cost	68.06	46.32	31.52	21.45

The committee is of the view that meaningful projections past ten years are unrealistic. On the other hand, if the fixed period is five years or shorter, the impact of the recovery assumption is believed to be too large a component

of the calculated value. On balance, the committee believes that a fixed period of ten years would introduce sufficient elements of the traditional discounted cash flow approach and provide a reasonable limit on the effects of the recovery assumption.

- (ii) As for the first model, the committee would choose a maximum rate of value decline of 30% of the assessed value at the prior valuation, as adjusted for acquisitions and dispositions of assessables. In the year of implementation of the model, the 30% would be applied to the adjusted replacement cost to determine the maximum allowance.
- (iii) Value Floor: The committee believes that a floor value of 30% of adjusted replacement cost is equally appropriate for this model as for the first model.
- (iv) Cash Flow Attributable to Assessables: The cash flow that is considered attributable to assessable assets is determined by multiplying that percent that assessable assets are of the aggregate machinery, building and land value times the total facility cash flow for the relevant period. The appropriate percent of assessable assets would be estimated when developing the replacement cost new model.

e. Statement of the Model

The model that is created by this alternative is detailed in Appendix D.

COMPARISON OF ECONOMIC DEBILITATION APPROACHES

The committee has compared the 'capitalization of past earnings' and 'adjusted discounted cash flow' approaches in Appendix E.

ADMINISTRATION AND APPEALS

The committee's mandate did not require it to consider various administrative and appeal aspects of the British Columbia assessment system. However, it is the view of the committee that changes in the following areas would contribute to the resolution of problems arising from the valuation and taxation of special purpose industrial properties.

a. Review or Determination of Allowances and Adjustments

As suggested in both of the approaches to external economic debilitation, for the taxpayer to receive an allowance, it is the view of the committee that the taxpayer should be required to make application and file supporting schedules and calculations. Historical cash flows or projected cash flows, depending on the debilitation model legislated, would be included in the required information to be filed.

The assessor must have reasonable access to the taxpayer's records so that he can satisfy himself as to the accuracy and/or reasonableness of the taxpayer's application for an allowance for external economic debilitation and to permit the assessor to determine excess operating costs so that replacement cost new may be adjusted appropriately. In the past, some industrial

taxpayers have been unwilling to provide the assessor with the access to their records that he requires to prepare a meaningful assessment. To date the assessor has had no effective recourse and has been left to prepare an assessment without the information to do so. In the view of the committee, this is unacceptable.

The committee believes that the Assessment Appeal Board should be required to deny the taxpayer any adjustment for excess operating costs if the Board is satisfied that:

- the taxpayer, on request, has failed to supply the assessor, on a timely basis, with the information necessary to quantify the adjustment; or,
- the taxpayer has intentionally misled the assessor.

As well, the committee believes that the Assessment Appeal Board should be required to deny the taxpayer any allowance for external economic debilitation if the Board is satisfied that:

- the taxpayer has failed to file a complete claim for an allowance by the due date for such claim;
- the taxpayer, on request, has failed to supply the assessor, on a timely basis, with any additional information necessary for the assessor to determine whether or not the allowance claimed by the taxpayer is appropriate; or,
- the taxpayer has intentionally misled the assessor or filed misleading information in his claim for an allowance.

b. British Columbia Assessment Authority

The purpose of the Assessment Authority has been to prepare objective and accurate valuations of properties subject to property taxation. The committee believes that this continues to be the purpose of the Assessment Authority. Where the assessor lacks access to the necessary information to prepare a meaningful assessment or where there is uncertainty as to the acceptance of a methodology by the Assessment Appeal Board, there may be a tendency for the assessor to err on the high side of value. If this were to happen, the Assessment Authority would lose its objectivity. To ensure this does not occur the committee suggests:

- assessors be assured access to the records necessary to prepare a meaningful assessment or appeal, as proposed in paragraph a. above;
- assessors be authorized to engage outside experts as necessary; and,
- all special purpose industrial assessments be coordinated and reviewed by the Assessment Commissioner and quality control procedures be instituted to ensure uniformity of approach and application of the valuation technique to all special purpose properties in the province.

c. Alleviating the Municipal Revenue Problem

The number of appeals of special purpose industrial properties and the failure to resolve these appeals before the date the

municipalities set their tax rates has resulted in financial uncertainty for certain municipalities. The committee has the following suggestions to assist in alleviating this problem:

- (i) External economic debilitation Whether there is external economic debilitation and, if so, its quantum is a major source of dispute. The committee anticipates that implementing either of its suggestions with respect to external economic debilitation would reduce, but not eliminate, these disputes. To provide a more reliable tax base for the municipality, the committee suggests that an external economic debilitation allowance claimed by a taxpayer be allowed automatically and included in determining the value on the authenticated roll as at December 31, provided that the taxpayer has filed all the necessary schedules and calculations to claim an allowance by the due date.

The Assessment Authority could then institute an appeal with respect to the size of the allowance if it disagreed with the taxpayer's computation.

Thus, the municipality could be reasonably assured that the value on the assessment roll will not be reduced by virtue of an adjustment to the external economic debilitation allowance, but it may be increased if the Assessment Authority is successful in an appeal of the allowance claimed.

- (ii) Timing of valuation and appeals: To implement this recommendation, the committee suggests that minor changes to the process of assessment and appeals of special purpose industrial properties be made so that the timing of events, in even-numbered years, is:

July 1	Valuation day for special purpose industrial properties
August 31	Interim special purpose roll of adjusted replacement cost published
October 31	Final filing date for claims of allowances for external economic debilitation and for appeals to the Court of Revision
December 31	Authenticated roll published

The committee believes that a claim for an external economic debilitation allowance should not be subject to review by the Court of Revision and that a complete claim filed on time should be reflected in the assessed value on the authenticated roll. Thus, the committee would recommend that the Order-In-Council establishing the Court of Revision should preclude review by the Court of Revision of claims for external economic debilitation allowances.

In odd-numbered years there would be no valuation or interim roll published. A claim for an external economic debilitation allowance could be made provided that no claim or appeal had been made in the prior year. A claim for an allowance would be based on the same data or projections as it would have been if filed in the prior year.

In odd-numbered years there would be no recognition of additions or deletions to assessment folios.

(iii) Specialized Assessment Appeal Board It is the view of the committee that an Assessment Appeal Board should be established that will hear only appeals with respect to special purpose industrial properties. Having a single specialized Assessment Appeal Board that hears all special purpose property appeals will:

- provide a greater degree of consistency of treatment as between taxpayers;
- create greater predictability as to the outcome of a case and thus reduce the number of appeals; and,
- allow the particular Board members to become more knowledgeable with respect to the valuation problems unique to special purpose industrial properties.

d. Assessment Appeal Board Procedures

In the view of the committee, the Assessment Appeal Board Rules of Practice and Procedure should be drafted to secure the most efficient and inexpensive determination of complex special purpose industrial property appeals.

To achieve this objective, rules relating to discovery of documents and parties and the exchange of expert evidence should be incorporated into the Rules to facilitate, in appropriate circumstances, the orderly and speedy conduct of hearing and pre-hearing procedures.

e. Assessable or Non-Assessable Asset

The committee recognizes that there will be future problems in determining whether or not a particular element of a special purpose industrial facility will be subject to assessment and taxation for property tax purposes. Specifically, there are practical problems in determining where the assessable building ends and the non-assessable machinery and equipment starts. The committee believes that a clearer definition of the base for property taxation is needed and that this definition must be prepared with an understanding of the integration of building and machinery commonly found in large resource processing facilities.

RECOMMENDATIONS

Based on the foregoing analysis, the committee recommends that:

1. actual value for those types of properties described in Appendix B -- termed special purpose industrial properties -- is determined in accordance with rules to be detailed in Regulations to the Assessment Act;

2. these rules require the assessor to determine replacement cost new for each special purpose industrial property and make adjustments thereto, as outlined in Appendix C or D, for the difference in the operating costs of the existing assessable assets vis-a-vis the operating costs hypothesized for the assessable assets in the replacement cost new model;
3. such adjusted value, termed adjusted replacement cost, is reduced by an allowance for external economic debilitation, but only if such allowance is requested by the taxpayer through filing a return in a prescribed form on or before the due date for such return;
4. the allowance for external economic debilitation is calculated using either historic cash flows as detailed in Appendix C or using projected cash flows and a residual value as detailed in Appendix D;
5. a taxpayer's properly filed claim for external economic debilitation is accepted for the purpose of computing the assessed value for the December 31 authenticated roll and the Courts of Revision have no capacity to review or alter a taxpayer's claim for an allowance for external economic debilitation;
6. the assessor, or other interested third party, may appeal a taxpayer's claim for external economic debilitation to the Assessment Appeal Board;
7. the taxpayer, or other interest third party, may appeal the assessor's computation of adjusted replacement cost to the Court of Revision and the Assessment Appeal Board;

8. the Assessment Appeal Board is required to deny an adjustment for excess operating costs if the taxpayer has not provided, on request, the information necessary for the assessor to quantify the adjustment;
9. the Assessment Appeal Board is required to deny an allowance for external economic debilitation unless the taxpayer has filed a complete return requesting such allowance by the due date and has provided, on request, any additional information necessary for the assessor to review the taxpayer's claim;
10. the Assessment Appeal Board is required to deny any adjustment or allowance where the taxpayer has intentionally misled the assessor;
11. the Assessment Authority is required to publish, on or before August 31, an interim roll of special purpose industrial properties with the properties valued at adjusted replacement cost and taxpayers who wish to claim an allowance for external economic debilitation are required to make such claim in prescribed form by October 31;
12. a specialized Assessment Appeal Board is established to hear special purpose industrial appeals and the rules of this Board require it to hold pre-hearing discoveries; and,
13. rules are enacted to more clearly define those elements of a large processing facility that are subject to property taxation.

APPENDIX A

HISTORY

APPENDIX A

HISTORY

In 1860, when British Columbia's first city of New Westminster was incorporated, provision was made for the appointment of an assessor who was required to assess freehold and leasehold property at its "actual value". Shortly thereafter when the Real Estate Act was passed in the Colony of Vancouver Island, assessors in the Colony were to take the "actual market value" of land and improvements as the value for taxation and apply thereto a tax rate of one percent.

Coupled with the difficulties inherent in establishing the meaning of "actual value" was the added handicap of assessors having little or no communication with their peers causing a 1905 commission appointed to review the Assessment Act to comment ... "Assessors should meet together and compare the basis on which their respective assessments are made" and "that assessments should be based upon personal inspection of properties assessed at frequent intervals". A period of spectacular increases in land values prior to the First World War was followed shortly thereafter by a rapid market decline and the quality of assessment rolls showed considerable inequities as assessors struggled to keep abreast of the marketplace. Understandably these inequities between property valuations in a given jurisdiction were similarly noticeable as between jurisdictions, leading to a proposal in 1934 that the proposed Bureau of Municipal Affairs should exercise supervision over administration of assessment laws and assessors to ensure a uniform system of procedures and equitable values, followed shortly by a further proposal that provision should be made for "the equalization of assessments on a scientific basis".

The sorry state of assessments came to a head in a number of reports to the Provincial Government in the 1945-1948 era concerning the gross inequities of assessments for school tax purposes. One report noted that "school mill rates varied from as low as 1.3 mills in some school districts to more than 50 mills in others", largely because of differing assessment levels and in some cases "assessments at values fixed during the real estate boom which preceded the First War".

These events led, in 1953, to the introduction of the Assessment Equalization Act to equalize assessments for school purposes throughout the province. The Act required that land and improvements be assessed at 50% of their "actual value", which term subsequently has been held by the Courts to be synonymous with "actual cash value". The Assessment Commissioner, appointed under that Act, was given broad powers to secure uniformity in assessments across the province and some noticeable improvement in the quality of assessments was achieved, particularly in municipalities (with the exception of villages) which carried out their own assessments. It is worth noting that the new Act required all assessments to be based upon 50% of actual values and a steady trend toward this aim was evident.

However, as the real estate marketplace fluctuated widely from area to area in the province, coupled with a strong upward price movement in certain locations by the mid-60's, the government of the day decided to impose two assessment limitations, without regard for the vagaries of the market. The first of these, in 1968, restricted increases in the total assessment for a school district to 5% (with minor exceptions) from one year to the next; the second, in 1971, restricted increases to a maximum of 10% on any particular parcel of property, again with minor exceptions, on a year to year basis.

The pyramiding effect of these two limitations caused severe distortions in assessments and carried the assessors further and further away from their aim of achieving "actual value" as had been envisioned when the Assessment Equalization Act was introduced in 1953. The 5% and 10% limits applied to every property, but in 1973 a further even more damaging change was made. In that year, the government decided it was inappropriate for industrial and commercial properties to be restricted by those limits and moved quickly to remove the two percentages from those and some other classes of property while retaining the percentage controls on assessments for residential and farm properties. The original principle of equalized assessments based on 50% of "actual value" as envisioned 20 years earlier in the Assessment Equalization Act was now virtually emasculated. In fact assessment had become an instrument to establish different taxation levels by class of property rather than being a yardstick to measure equitable tax responsibility.

As pressures for a return to equitable assessments mounted, the government froze all assessments at their 1974 levels while consideration was being given to a complete overhaul of the system. The "freeze" remained for three years while the newly established B.C. Assessment Authority labored to develop an actual value roll while concurrently preparing annually an updated frozen roll for tax purposes. The three year "freeze", imposed as it was without regard to rising market activity, resulted in the level of assessment dropping even lower and inequities becoming even more widespread. In many areas the 5% and 10% artificial limitations imposed in 1968 and 1971 coupled with the complete freeze during 1975, 1976 and 1977 had left residential assessments at an extremely low level and in at least one school district the average residential assessment was less than 12% of actual value with the land component being at an even lower level. Commercial, industrial and some other property classes, on the other hand, were much closer to the required 50% of actual value base.

When the first "full actual value" assessment roll was prepared in 1978 it became apparent immediately that if used in its initial form, residential property would experience substantial assessment increases, frequently as high as five to ten times its earlier levels, while other property classes, being nearer to the original level of 50% of actual value would only increase by two to three times.

To avoid this complication, the government imposed a variable assessment percentage of the full actual value. Thus in 1978, all residential properties were taxed on 15% of their actual value while most other classes were taxed on 30% of their actual value. The percentages were applied on all property in the province, without regard to localized market changes and caused even further disruption as dramatic tax shifts occurred between classes of property. It ignored the reality of the market which varies continuously by applying corrective factors equally in all parts of B.C. The result was that tax shifts caused by the market itself were either overcompensated or undercompensated. Subsequent variations to the assessment percentages were determined by the government annually until by 1982 the residential class had dropped to 10% of actual value while industry was being taxed at 34% of its actual values. Other non-residential classes of property ranged from 24.5% (commercial) to 80% (tree farm lands).

So the stage was set for future problems. Despite the introduction in 1983 of a variable tax rate structure replacing the provincial varying assessment percentages and the resulting opportunity for local market activity to be taken into consideration at the municipal level, industrial property was being taxed at 3.4 times the rate for residential property as compared to a 2:1 ratio in 1978. This inequity together with the substantial adverse effects of an economic recession prompted many to pursue strong assessment appeals. This was particularly evident in large industrial plants upon which the economy had a particularly strong impact.

From 1982 to 1986, large industries with properties valued at \$11.1 billion initiated appeals totalling \$2.9 billion (21.2%) of their assessed values. By mid-1986, the Assessment Appeal Board had already awarded reductions of \$570 million, on an annualized basis, with many appeals still to be finalized.

APPENDIX B

TYPES OF PROPERTIES TO BE DESIGNATED

AS SPECIAL PURPOSE

INDUSTRIAL PROPERTIES

Breweries
Wineries
Distilleries
Sawmills
Planer Mills
Plywood Mills
Shake & Shingle Mills
Pulp & Paper Mills
Refineries
Gas Scrubbing Plants
Petroleum Bulk Tank Farms
Coal Mines
Mines (Metal)
Quarries
Smelters
Cement Plants
Asphalt Plants
Concrete Mixing Plants
Shipbuilding
Chemical & Petro Chemical
Grain Elevators
Deep Sea & Drydock Wharfage
Grain & Coal Terminals
Aircraft Hangars
Dams & Power Generator Facilities
Fertilizer Plants
Glass Manufacturing Plants
Steel Mills
Compressor Stations
Insulation Plants

Fish Processing and Packaging Plants

Liner and Specialty Board Plants

Flour Mills

Sugar Mills

Bulk Handling Facilities

Foundaries

Ethanol Plants

Reconstituted Wood Mills

Wafer Board Mills

APPENDIX C

CAPITALIZATION OF PAST EARNINGS

STATEMENT OF THE MODEL



1. Definition of Terms

- a. Replacement Cost New (RCN) This is acquisition cost of the assessables for a new facility that would replace the utility of the existing facility. The new facility is constructed using the most economic current technology. Any assets excess to the requirements of the existing facility, such as excess land or buildings, would be valued separately using normal appraisal techniques.
- b. Internal Economic Debilitation (IED) This is the term used to describe the capitalized value of the difference between the normally higher operating costs related to the existing assessables and the operating costs of assessables in the hypothetical replacement facility. To the extent there is a foreseeable limited economic life to the existing facility; the higher operating costs are discounted only over this limited life. A foreseeable limited economic life will be deemed to exist only if the facility will be closed within ten years because of a loss of internal supply. In this model, IED is calculated using a legislated capitalization rate. Where there is an anticipated fixed difference in economic operating costs for an indefinite period then

$$\text{IED} = \frac{\text{Excess Operating Costs}}{\text{Capitalization Rate (CR)}}$$

Adjusted replacement cost (ARC) is defined as replacement cost new (RCN) adjusted for internal economic debilitation (IED).

$$\text{ARC} = \text{RCN} - \text{IED}$$

(In the unusual situation where operating costs of the replacement cost new facility exceed the operating costs of the existing facility (an operating cost deficiency), internal economic debilitation would be 'negative' and $IED = \text{Operating Cost Deficiency} / \text{Capitalization Rate}$ and $ARC = RCN + IED$.)

- c. External Economic Debilitation (EED) Subject to limits, this is the difference between the adjusted replacement cost value of assessables and the value, as prorated to assessables, which can be supported by the cash flow capacity of the facility -- termed the supportable value (SV). Supportable value in this model is calculated by capitalizing historical cash flows.
- d. Actual Value (AV) Actual value is defined as:

$$AV = ARC - EED$$

2. Calculating External Economic Debilitation (EED)

- a. Normalized Weighted Average Cash Flows (NACF) The major assumption of this model is that sustainable future earnings can be projected from historical cash flows. For this purpose a weighted average of past cash flows is calculated. The weighted average cannot be negative. To the extent any cash flow is for a period of less than one year, it is annualized. Cash flows are 'normalized' by making adjustments necessary to obtain amounts that would have been incurred or received if the facility were to have been operated by a hypothetical purchaser dealing at arm's length with all suppliers and customers and on the assumption that the facility was operated to industry standards with a view

to maximizing its value. Normalized cash flows used are from the last fiscal period ending prior to the valuation date (NCF-1) and from the three immediately preceding fiscal periods (NCF-2, NCF-3 and NCF-4 respectively).

Normalized weighted average cash flows (NACF) is determined as:

$$\text{NACF} = 1/3 \times (\text{NCF-1} + \text{NCF-2}) + 1/6 \times (\text{NCF-3} + \text{NCF-4})$$

If NACF is negative, it is deemed to be nil. This formula has the effect of weighting the last two years of cash flows by a factor of two, vis-a-vis the two years preceding them.

- b. Cash Flow or Value Attributable to Assessables To the extent there is external economic debilitation it will first impact on the value of the resource and any intangible assets. After these values have been reduced to nil, the value of land, buildings and equipment ('hard assets') will be debilitated on a prorata basis until the value of any particular asset reaches its scrap value. Thus, if there is debilitation of these hard assets occurring, all the cash flows will be supporting any remaining value in the hard assets. To determine the cash flow available to support assessables, the cash flows can be prorated on the relative value of assessables vis-a-vis non-assessables. This relative value is estimated as part of the development of the replacement cost new model. The portion of cash flows to support assessable value is determined as:

$$\text{Value Ratio (VR)} = \frac{\text{Value of Assessables}}{\text{Value of Assessables} + \text{Value of Non-Assessable Equipments}}$$

Non-assessable equipments will include all hard assets that are not assessables and are used to produce the cash flow. For instance, in a mine they would include mining equipment. The value ratio is a single number estimated when developing the replacement cost new of the assessables.

Thus, cash flows attributable to assessables in this model are:

$$VR \times NACF$$

- c. Supportable Value of Assessables (SV) The value of assessables that can be supported by cash flow is found by capitalizing the cash flow attributable to assessables at the capitalization rate (CR).

$$SV = \frac{VR \times NACF}{CR}$$

If the supportable value of assessables is greater than the adjusted replacement cost, no external economic debilitation exists. If not, then external economic debilitation (EED), subject to limits, is:

$$ARC - SV$$

If the facility has a limited foreseeable economic life because of a loss of internal supply, then the supportable value (SV) should be adjusted by applying a factor to it derived by use of the capitalization rate.

For this purpose, as for the capitalization of excess operating costs, a limited foreseeable economic life will be deemed to exist only if the facility will be closed within ten years because of a loss of internal supply. The computation of an adjusting factor for a facility to be closed after three years, if the capitalization rate is 8%, would be done as follows:

Value of \$100 per annum for 3 years at 8% - \$258

Value of \$100 indefinitely at 8% - \$1,250

Factor to be applied to supportable value (SV)

$$= \frac{258}{1250} = 21\%$$

- d. Imposed Model Limit - Rate of Value Decline The model will recognize only a 30% value decline per two year period. However, to prevent anomalies on conversion to the model in the initial year of implementation, the 30% limit will not apply to facilities with a limited foreseeable economic life and the percentage will be calculated of the adjusted replacement cost (ARC). Thus in the year of implementation and the following year, external economic debilitation (EED) cannot be more than:

.3 x ARC

or

.7 x ARC for facilities with a limited foreseeable
economic life

For subsequent valuations, the value cannot decline by more than 30% of the value on the previous roll (AV-2) as adjusted for additions and deletions -- called adjusted prior actual value (AAV-2) where

$$\text{AAV-2} = \text{AV-2} + \text{Cost of assessable additions} - \text{proceeds of disposition of assessable deletions.}$$

Thus external economic debilitation (EED) could not be more than:

$$.3 \times \text{AAV-2}$$

- e. Imposed Model Limit - Value Floor The model will not recognize any debilitation in excess of 70% of the adjusted replacement cost new (ARC). Thus external economic debilitation cannot be more than:

$$.7 \times \text{ARC}$$

- f. External Economic Debilitation (EED) Thus, considering restraints, in the year of model implementation external economic debilitation (EED) would be the lesser of:

- (i) $.3 \times \text{ARC}$
(or $.7 \times \text{ARC}$ for facilities with a limited foreseeable economic life)
- (ii) $\text{ARC} - \text{SV}$

- C-7 -

In following valuation years external economic debilitation (EED)
would be the lesser of:

- (1) .3 x AAV-2
- (11) .7 x ARC
- (111) ARC - SV

APPENDIX D

ADJUSTED DISCOUNTED CASH FLOW

STATEMENT OF THE MODEL

1. Definition of Terms

- a. Replacement Cost New (RCN) This is acquisition cost of the assessables for a new facility that would replace the utility of the existing facility. The new facility is constructed using the most economic current technology. Any assets excess to the requirements of the existing facility, such as excess land or buildings, would be valued separately using normal appraisal techniques.
- b. Internal Economic Debilitation (IED) This is the term used to describe the capitalized value of the difference between the normally higher operating costs related to the existing assessables and the operating costs of assessables in the hypothetical replacement facility. To the extent there is a foreseeable limited economic life to the existing facility; the higher operating costs are discounted only over this limited life. A foreseeable limited economic life will be deemed to exist only if the facility will be closed within ten years because of a loss of internal supply. In this model, IED is calculated using a legislated discount rate. Where there is an anticipated fixed difference in economic operating costs for an indefinite period then

$$IED = \frac{\text{Excess Operating Costs}}{\text{Discount Rate (DR)}}$$

Adjusted replacement cost (ARC) is defined as replacement cost new (RCN) adjusted for internal economic debilitation (IED).

$$ARC = RCN - IED$$

(In the unusual situation where operating costs of the replacement cost new facility exceed the operating costs of the existing facility (an operating cost deficiency), internal economic debilitation would be 'negative' and $IED = \text{Operating Cost Deficiency} / \text{Capitalization Rate}$ and $ARC = RCN + IED$.)

- c. External Economic Debilitation (EED) Subject to limits, this is the difference between the adjusted replacement cost value of assessables and the value, as prorated to assessables, which can be supported by the cash flow capacity of the facility -- termed the supportable value (SV). Supportable value in this model is calculated by capitalizing projected cash flows for ten years and adding this amount to the adjusted replacement cost discounted ten years.
- d. Actual Value (AV) Actual value is defined as:

$$AV = ARC - EED$$

2. Calculating External Economic Debilitation (EED)

- a. General This model is a restricted application of the discounted cash flow technique. Future cash flows are considered to be made up of two components:
- the projected cash flows for the next ten years from the facility
 - cash flows commencing ten years from the date of valuation which will be sufficient to support the present adjusted replacement cost (ARC).

- b. Future Cash Flows These are the projections of the cash flows which will be generated by the facility over the next ten years. The projected cash flows are 'normalized' by establishing them as the amounts that would be received or incurred if the facility were to be owned by a hypothetical purchaser who would deal at arm's length with all suppliers and customers and who would operate the facility to industry standards with a view to maximizing its value.

Only to the extent that the projected cash flows will be attributable to assessables can they be included as a component in calculating the value of assessables. Below in paragraph c. is a computation of cash flows attributable to assessables.

The present value (PV), calculated at the discount rate (DR) of the normalized future cash flows (NCF₁ to NCF₁₀) attributable to assessables (VR x (NCF₁ to NCF₁₀)) would constitute this component of the total facility value -- termed cash flow value (CFV).

$$CFV = VR \times PV (NCF_1 \dots NCF_{10}) \text{ at DR}$$

If the facility has a limited foreseeable economic life because of a loss of internal supply then normalized cash flows attributable to assessables for only this foreseeable life would be included in the calculation. A limited foreseeable economic life will be deemed to exist only if the facility will be closed within ten years because of a loss of internal supply.

- c. Cash Flow Attributable to Assessables To the extent there is external economic debilitation it will first impact on the value of the resource and any intangible assets. After these values have been reduced to nil, the value of land, buildings and equipment ('hard assets') will be debilitated on a prorata basis until the value of any particular asset reaches its scrap value. Thus, if there is debilitation of these hard assets occurring, all the cash flows will be supporting any remaining value in the hard assets. To determine the cash flows available to support assessables; the cash flows can be prorated on the relative value of assessables vis-a-vis non-assessables. This relative value is estimated as part of the development of the replacement cost new model. The portion of earnings to support assessable value is determined as:

$$\text{Value Ratio (VR)} = \frac{\text{Value of Assessables}}{\text{Value of Assessables} + \text{Value of Non-Assessable Equipment}}$$

Non-assessable equipment will include all hard assets that are not assessables and are used to produce the cash flow. The value ratio is a single number estimated when developing the replacement cost new of the assessables.

Thus, projected cash flows attributable to assessables in this model are:

$$\text{VR} \times (\text{NCF}_0 \dots \text{NCF}_{10})$$

- d. Discounted Adjusted Replacement Cost This component of value is calculated on the assumption that at the end of ten years the facility will have sufficiently optimistic prospects to support the current adjusted replacement cost (ARC). It is calculated as the present value, using the discount rate (DR), of the adjusted replacement cost over 10 years and is called the residual value (RV).

$$RV = \frac{ARC}{(1 + CR)^{10}}$$

If the facility has a limited foreseeable economic life then $RV = 0$.

- e. Supportable Value of Assessables The supportable value of assessables (SV) is found by adding the two components of value -- the cash flow value (CFV) and the residual value -- thus:

$$SV = CFV + RV$$

If the supportable value is greater than the adjusted replacement cost (ARC) then no external economic debilitation (EED) exists. If not, then external economic debilitation (EED), subject to limits, is:

$$ARC - SV$$

- f. Imposed Model Limit - Rate of Value Decline The model will recognize only a 30% value decline per two year period. However, to prevent anomalies on conversion to the model in the initial

year of implementation, the 30% limit will not apply to facilities with a limited foreseeable economic life and the percentage will be calculated of the adjusted replacement cost (ARC). Thus in the year of implementation and the following year, external economic debilitation (EED) cannot be more than:

$$.3 \times \text{ARC}$$

or

$$.7 \times \text{ARC for facilities with a limited foreseeable economic life}$$

For subsequent valuations, the value cannot decline by more than 30% of the value on the previous roll (AV-2) as adjusted for additions and deletions -- called adjusted prior actual value (AAV-2) where

$$\text{AAV-2} = \text{AV-2} + \text{Cost of assessable additions} - \text{proceeds of disposition of assessable deletions.}$$

Thus external economic debilitation (EED) could not be more than:

$$.3 \times \text{AAV-2}$$

- g. Imposed Model Limit - Value Floor The model will not recognize any debilitation in excess of 70% of the adjusted replacement cost (ARC). Thus, external economic debilitation cannot be more than

$$.7 \times \text{ARC}$$

h. External Economic Debilitation (EED) Thus, considering restraints, in the year of model implementation external economic debilitation (EED) would be the lesser of:

- (i) $.3 \times \text{ARC}$
(or $.7 \times \text{ARC}$ for facilities with a limited foreseeable economic life)
- (ii) $\text{ARC} - \text{SV}$

In following valuation years external economic debilitation (EED) would be the lesser of:

- (i) $.3 \times \text{AAV-2}$
- (ii) $.7 \times \text{ARC}$
- (iii) $\text{ARC} - \text{SV}$

APPENDIX E

COMPARISON OF EXTERNAL ECONOMIC DEBILITATION APPROACHES

	<u>Capitalization of Past Earnings</u>	<u>Adjusted Discounted Cash Flows</u>
1. Ease of data acquisition.	Easier - actual historical results are used.	More difficult - projections are required of future sales, prices, operating and input costs.
2. Extent of agreement as to data inputs.	Relatively high level of agreement - disputes are over what has happened and how cash flows should be normalized.	Considerable disagreement is likely as opinions as to what will happen can be divergent. Projected cash flows must still be normalized.
3. Tax base stability.	Some measure of stability is guaranteed by legislating a maximum rate of debilitation. Floor value is proscribed.	Some measure of stability is guaranteed by legislating a maximum rate of debilitation. Floor value is proscribed.
4. Likely accuracy vis-a-vis actual value.	A more approximate model with no ability to consider perceptions of future events.	Closer to the discounted cash flow and capable of giving some recognition to all factors that may affect value.
5. Costs to implement.	Little additional costs to consider external economic debilitation.	Additional costs incurred to consult experts and additional appeal costs likely. More training of assessors required.
6. Number of disputes appealed.	Fewer appeals. Disputes more likely to be resolved as they are arguments as to the facts.	More appeals as disagreements can arise over subjective projections.